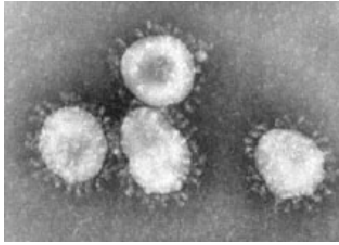


SARS Developing a Research Response

Epidemiology

Research Agenda



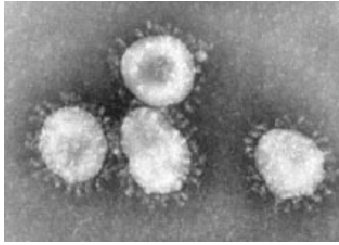


SARS Developing a Research Response

Technical & Scientific Issues

- Animal Reservoir I
 - Is there an animal reservoir?
 - Are there mutations associated with species jumping?
 - Virological/environmental factors associated with introductions into humans?
 - Molecular epi of animal SARS viruses? How widespread?
 - Quantitation of infectivity in animal body fluids and tissues
 - Relationship domesticated/semi-domesticated animals
 - Are infected animals sick?
 - Animal challenge studies (susceptibility)
 - Development of animal models



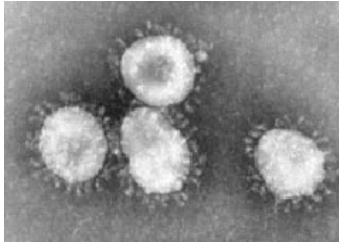


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Technical & Scientific Issues II

- Animal Reservoir?
 - Animal SARS virus as a precursor human vaccine candidate?
 - More studies of natural history of animal SARS infection in animal handlers in China



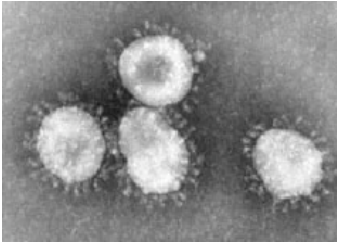


SARS Developing a Research Response

Natural History I

- **SARS historically**
 - Historic blood donor specimens? Duration of SARS Ab?
 - Study specimens from those with mild disease



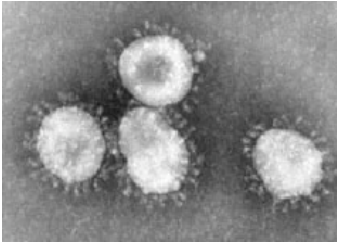


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Natural History II

- Risk factors, characteristics of Super Spreaders?
 - Detailed description of “super spreading” event
 - Implications for control
 - Shedding/Infectivity
 - Immuno-compromised at increased risk?
 - Increased duration of shedding?
 - Host genetics vs viral genetics vs environmental factors?
 - Role of nebulizers, unrecognized SARS, etc...
 - Case-control studies comparing SuperS with others



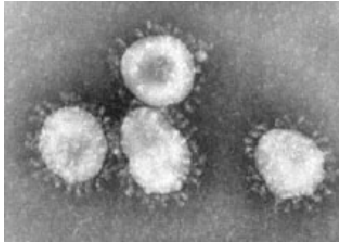


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Natural History III

- **Spectrum and Course of illness I**
 - **Role of immune response?**
 - Clues from observations so far/data needed
 - **Role of Co-infections?**
 - Explain absence of co—infections such as influenza
 - Role of human metapneumoviruses, chlamydia
 - **Infectivity of human blood, plasma and tissues**
(from the standpoint of risk to recipients of blood and tissues)



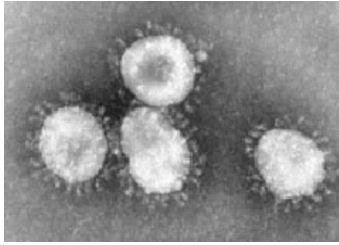


SARS Developing a Research Response

Natural History III

- **Spectrum and Course of illness II**
 - Role of diarrhea as a symptom?
 - Role of Re-infection?
 - Duration of immunity in recovered SARS patients?
 - CNS involvement? Autopsy protocols needed
 - Long-term sequelae/clinical and immunologic
 - Disease in children
 - Susceptibility, Severity of disease, Immune response, Infectivity, vertical transmission/perinatal/pregnancy and fetal outcome
 - Engage in household transmission studies



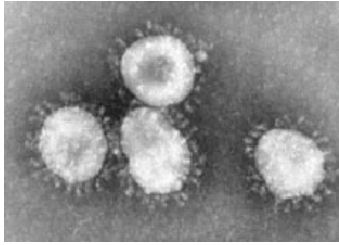


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Natural History IV

- **Extended transmission studies**
 - Why disconnect between travel pattern and number of SARS introductions (Shanghai/Tokyo)
 - Role of mathematical models
 - Reproductive rate (R_0) of SARS virus:
 - Seasonality – does it change Summer vs winter?
 - Role of diarrhea/fomites/airborne tx



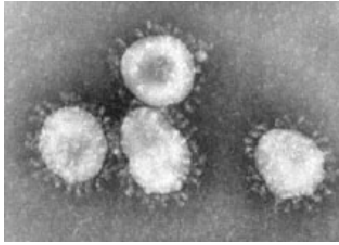


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Additional Epi Issues

- Infection-Control Practices
 - Sociology/practicality of self-isolation
 - Relative timing of infectivity, viral shedding, symptoms, etc
 - Environmental stability of virus



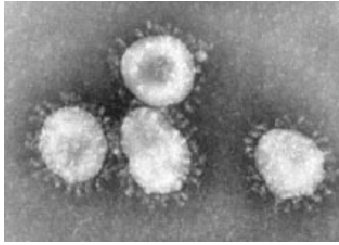


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Infrastructure for Research Adequate?

- **Improve collaborations with China**
 - In-country
 - Ensure 2-way collaborations
 - Overcome issues related to trust





SARS Developing a Research Response

Role of collaboration

- Need for open communication**
 - **What are the barriers to collaborate research?**
 - Recognition to field researchers
 - Emergency versus long-term collaboration issues
- Identify and support existing collaborations**
 - Augment existing infrastructure
 - US/Japan panel model
 - FIC extramural
 - CIPRA/China HIV collaboration

